6.2.3 Results of Surface Water Monitoring from Springs

Measured tritium (^3H) concentrations from the springs ranged from -3 to 12 pCi/L (Table 6-7). Three of the samples, Medlin's Ranch, Stone Cabin Ranch, and Twin Springs Ranch, yielded results that were indistinguishable from background (i.e., ≤ Lc). The Adaven Springs sample result, at 12 ± 22 pCi/L, was statistically at Lc. All sample analyses were well below the safe drinking water limit of 20,000 pCi/L. Sample results for Adaven Springs, Medlin's Ranch, Stone Cabin Ranch, and Twin Springs Ranch were similar to results reported by DRI in the Nevada Test Site Environmental Report 2003 (DOE, 2004d).

Table 6-7. Tritium results for CEMP offsite springs and spring discharges in 2004

Monitoring Location	^3H ± Uncertainty[(a)] (pCi/L)	Lc
Adaven Springs	12 ± 22	12
Medlin's Ranch - spring located 11 miles west of ranch house	9 ± 18	14
Stone Cabin Ranch	-2 ± 16	12
Twin Springs Ranch	-3 ± 16	12

(a) ± 2 standard deviations

6.2.4 Results of Groundwater Monitoring

The results for the 20 groundwater tritium analyses from the DRI Tritium Laboratory are presented in Table 6-8. The measured activities ranged from -5 to 29 pCi/L. All of the samples, with the exception of Henderson and Boulder City, yielded results that were statistically indistinguishable from background (≤ Lc). Results from Henderson and Boulder City were statistically greater than background. The water in these samples originated from Lake Mead. Slightly elevated tritium activities in Lake Mead are well documented by previous investigations (DOE, 2002d; DOE, 2003c; DOE, 2004) and are due to residual tritium persisting in the environment that originated from global atmospheric nuclear testing. All sample analyses were well below the safe drinking water limit of 20,000 pCi/L. Trending of the data was not conducted due to the limited number of previously collected samples (three previous sets have been collected by DRI thus far). The only notable changes were at the Boulder City water treatment plant (from 27 ± 16 pCi/L in 2002 to 35 ± 28 pCi/L in 2003 and back to 29 ± 17 in 2004). The change in measured tritium activity at Boulder City is well within the range of uncertainty associated with the 2002, 2003, and 2004 analyses.

6.2.5 Environmental Impact

Results of the CEMP tritium analyses conducted on selected offsite groundwater wells and water supply systems surrounding the NTS showed no evidence of tritium migration offsite via groundwater. Most of the samples analyzed were below the decision level for tritium (see Tables 6-7 and 6-8). The greatest observed activities, (27 pCi/L and 29 pCi/L from Henderson and Boulder City, respectively) were well below the safe drinking water standard of 20,000 pCi/L.

Table 6-8. Tritium results for CEMP offsite wells in 2004

Monitoring Location	^{3}H ± Uncertainty[(a)] (pCi/L)	Lc (pCi/L)
Alamo City	-3 ± 23	13
Amargosa Valley	-2 ± 24	14
Beatty	-2 ± 23	16
Boulder City	29 ± 17	10
Caliente	7 ± 23	12
Cedar City	-4 ± 21	16
Delta	2 ± 20	16
Goldfield	-4 ± 23	13
Henderson	27 ± 16	11
Indian Springs	-1 ± 25	14
Las Vegas	3 ± 18	14
Milford	-5 ± 20	16
Nyala Ranch	-1 ± 19	12
Overton	3 ± 22	14
Pahrump	-1 ± 23	14
Pioche	2 ± 22	16
Rachel	-1 ± 20	13
Sarcobatus Flats	3 ± 25	13
St. George	-3 ± 21	16
Tonopah	-2 ± 19	13

Green shaded results are considered detected (result greater than the MDC of 26 pCi/L)

(a) ± 2 standard deviations